

DOE's Office of Site Closure: Progress Towards 2006  
James J. Fiore, William E. Murphie, Marcus E. Jones  
Office of Site Closure, U. S. Department of Energy

## **ABSTRACT**

The Department of Energy's (DOE) Office of Environmental Management (EM) was established in 1989 to address the legacy of the Cold War: assess and clean up contamination, treat and dispose of nuclear materials and wastes, and transition sites from production operations to another government use, closure, or non-government use.

In June 1998, EM published "Accelerating Cleanup: Paths to Closure," in which a new programmatic focus was articulated: complete cleanup at more than 90% of the EM sites by 2006. To achieve this goal, EM developed or revised "baselines" for its projects, which included descriptions of the work to be accomplished, schedules (including interim milestones), and cost estimates for each project. In 1999, EM established the Office of Site Closure (OSC) to be responsible for the entire missions of waste management, environmental restoration, and nuclear materials stabilization for sites under the jurisdiction of seven of EM's ten Operations or Field Offices.

In March 2000, EM published a "Status Report on Paths to Closure," which addressed progress towards the "90% goal" reflecting the current and projected budgets. The status report showed that the anticipated completion dates for a number of sites had slipped, in some cases to beyond 2006.

Since it was formed, EM has made significant progress in completing cleanup at a number of sites and completing a number of activities at other sites that will enable EM to close out its responsibilities at those sites on the schedule identified in "Accelerating Cleanup: Paths to Closure." To achieve these successes, EM has developed and implemented innovative technologies to assist in environmental restoration, waste management, materials disposition, and long term monitoring capabilities which enable site closure. EM has also continued to work closely with stakeholders to identify final land uses for sites which benefit the public and the environment, and which must be agreed to for a final end state to be achieved. And EM has adopted innovative approaches such as: new contract incentives; sales of site assets, such as equipment, land or buildings; and reindustrialization. But the realities of the delays discussed in the "Status Report on Paths to Closure" remain.

Of the 113 sites included in the EM program, 109 fall within the responsibility of OSC. Of these 109 OSC sites, cleanup has been completed at 71. An additional three are scheduled to be completed by the end of FY 2001. But what of the remaining 35 sites? When will cleanup be completed? And how will OSC deal with new information affecting site cleanup, from the discovery of unanticipated contamination to the addition of new facilities to the current site baselines.

This paper will explore the progress OSC has made in cleaning up our sites. It will highlight the sites where cleanup was completed in FY 2000, and will describe some of the activities that enabled this achievement. It will track progress for those sites that are scheduled to be completed by 2006 and beyond. And it will identify some of the challenges that have arisen which indicate that some sites initially planned to be completed by 2006 may require additional time to be remediated.

## **INTRODUCTION**

The Department of Energy's (DOE's) Office of Environmental Management (EM) is responsible for addressing the legacy of the Cold War - remediating sites and disposing of the wastes resulting from the nation's 50 years of nuclear weapons research, development, and production. These activities include: storing, treating, and disposing of waste; characterizing, assessing, and remediating or stabilizing contaminated soil or groundwater; and decommissioning facilities used during the Cold War or during EM's remediation activities.

Since EM was established in 1989, it used a program office structure to address its specific activities: waste management, environmental restoration, technology development, and nuclear materials stabilization. In the early years of the program, EM developed a series of Five Year Plans articulating the specific activities to be conducted in the near term to consolidate ongoing activities and accelerate efforts to deal with accumulated waste, contamination, and materials. As the scope of the program became better defined, EM developed Baseline Environmental Management Reports to identify the total life-cycle cost estimates and anticipated schedules for the environmental restoration, waste management, materials disposition, and transition activities required to accomplish its mission.

These documents were followed by "Accelerating Cleanup: Paths to Closure," published in June 1998, in which EM refocused its efforts to completing cleanup at more than 90% of its sites by 2006. To achieve this goal, EM developed or revised "baselines" for its projects, which included descriptions of the work to be accomplished, schedules (including interim milestones), and cost estimates for each project.

In late 1999, EM reorganized to better focus on the completion of its mission on a site level and to enable closer coordination between Headquarters and the Field activities. The Office of Site Closure (OSC) was established to address the entire missions of waste management, environmental restoration, and nuclear materials stabilization at the following Operations Offices: Albuquerque, Chicago, Nevada, Oakland, Oak Ridge, Rocky Flats, and Ohio. These responsibilities encompass work at 109 of EM's 113 geographic sites. These sites include everything from legacy waste storage, treatment, and disposal to managing nuclear materials processing facilities and shut down nuclear reactors to remediating large tracts of land with soil or groundwater contamination.

In March 2000, EM published a "Status Report on Paths to Closure," which addressed progress towards the "90% goal" in light of current and projected budgets. The status report showed that the

anticipated completion dates for a number of sites had slipped, in some cases to beyond 2006. With the publication of that report, and the budget and programmatic realities it described, it was now clear that the goal of completing cleanup of 90% of the EM sites by 2006 was not achievable. However, the status report specifically recognized EM's new goal, which is to focus on completing as much cleanup as possible by 2006, and reducing the EM infrastructure costs at each site as expeditiously as possible.

## **THE OSC VISION**

Shortly after being established, OSC articulated an organizational vision to help guide the program and ensure that day-to-day activities would focus on the single mission of achieving site cleanup. This is our vision:

- C Set the standard for safe, cost-effective closure of nuclear facilities;
- C Be the model for transitioning Government activities from operations to closure;
- C Achieve end-states that are safe now and enable protective, effective stewardship for the future;
- C Deploy new technologies to help the drive toward closure; and
- C Focus on closing sites under our responsibility by 2006

It is no accident (pun intended) that the first element of our vision speaks to safety. The OSC policy since our inception has been, and remains, that we will comply with all applicable laws, regulations, and agreements, and we will conduct our work in a safe manner. While we are focusing on achieving cleanup completion, and achieving it at the lowest feasible cost on the fastest possible schedule, OSC recognizes that maintaining the sites in a safe condition for our workers, for the surrounding public, and for the environment is mandatory. We continue to stress the importance of worker safety while negotiating new contracts and in conducting work. We will not hesitate to fine or remove contractors who cannot perform in a safe manner. It cannot be said more clearly than this: **OSC WILL NOT COMPROMISE THE SAFETY OF OUR WORKERS.**

OSC also knows that we will only succeed in completing cleanup of the various EM sites with the help of our sister organization, the Office of Science and Technology (OST). Several of the site achievements discussed in this paper were enabled by, or accomplished more economically because of, technologies developed, identified, or supported by OST. We will continue to seek ways to apply new technologies to our cleanup activities, and we recognize the role OST technologies have played in our achievements to date.

These two elements - safety and technology, in addition to each being key to our success, also combine to have a catalytic effect on our ability to clean up sites. Integrated Safety Management and effective work planning have been combined with worker involvement in the field. This combination has led to

more effective deployment of new technologies and resulting cost and schedule savings. These successes have been accomplished through the support of EM's Office of Safety, Health, and Security and OST.

## **ACHIEVING RESULTS AND ASSESSING PROGRESS**

Articulating the vision and focusing all activities on achieving the OSC mission have resulted in some recent successes, and also helped us focus on issues that must be resolved for final site cleanup to be achieved. It has also forced us to ask the question: How will we know when we are achieving our vision?

We have answered this question by identifying specific performance objectives and then measuring our progress against them. For our current projects, OSC will be:

- C Accelerating the cleanup process
- C Putting the necessary steps in place to accelerate future site cleanups
- C Proving it by being well on the way to completing the Closure Account Sites

### **Accelerating the Cleanup Process**

As planned, in FY 2000 we completed the King Avenue Site in Columbus, Ohio, a laboratory facility in the downtown area. The work at the Site involved low levels of radioactivity resulting from research with uranium, thorium, and other radioactive elements, and included collecting samples, scanning external areas and performing verification surveys. During final cleanup activities, the remediation contractor was preparing to remove contaminated underground piping. However, existing Site activities would have been impacted by this removal. By using a new technology, an in-situ pipe scanner, the remediation contractor was able to remotely characterize the piping, which avoided shutting down above-grade Site activities. During this remote characterization, less contamination was found in the pipe than anticipated, and this contamination was removed with minimal above-grade disruption.

All decontamination and demolition activities at the General Atomics Site in San Diego were completed in August 2000, as planned. However, we had also planned to complete all cleanup at the Site during FY 2000, but we were unable to implement our plan due to potentially contaminated hot cell yard soils. At the time we completed the demolition activities, soil temporarily stockpiled on site for survey and thought to be clean was found to be contaminated with random traces of low levels of fission products. Unfortunately, a cost analysis showed that it was cheaper to dispose of this soil as low-level waste than to go through the separation and survey process required to reuse it as clean soil. All of this soil will be shipped to the Nevada Test Site for disposal in the spring of 2001, which will result in physical completion of DOE responsibilities at the General Atomics Site.

The transfer of the Grand Junction Office Site to the local community will be completed in March 2001. The Site transfer and lease-back arrangement will result in an estimated savings of \$1.3 million per year or 60% of the annual facility maintenance costs. Additional information on the Grand Junction project will be presented in other papers at WM '01.

The former Monticello Remedial Action Project uranium mill site property was transferred to the City of Monticello in June 2000. The City is restoring the Site under an Memorandum of Agreement with DOE. The Monticello vicinity properties were also deleted from the National Priorities List on February 28, 2000.

These achievements are the result of the efforts OSC has made to accelerate cleanup at our sites, as well as a recognition of the tremendous efforts by DOE's contractors to accelerate work and reduce costs.

### **Putting the Necessary Steps in Place to Accelerate Future Site Cleanups**

When it was established in 1999, OSC set up the Closure Policy Team at DOE-Headquarters to take the lead in developing policies and procedures to promote efficient site cleanup/closure. The Team has made tremendous progress during its first year. Specific areas addressed and the results of the Closure Policy Team's activities are outlined below.

#### **Post-Contract Benefit Liabilities**

On August 3, 2000, Assistant Secretary for Environmental Management Dr. Carolyn Huntoon issued a memorandum reaffirming DOE's commitment to provide for post-retirement medical benefits after sites close. The memorandum stated that such benefits will be generally consistent with the benefits in existence at closure with regard to cost, value, and longevity. Preliminary estimates of the present value of the total cost for post-retirement medical benefits for the Rocky Flats Environmental Technology Site in Golden, CO, the Mound Environmental Management Project in Miamisburg, OH, and the Fernald Environmental Management Project in Fernald, OH, are more than \$700M. Through the Closure Policy Team, OSC is developing a comprehensive policy on how these liabilities will be addressed.

#### **Records Retention**

The records/data volumes at all sites are large. For example, there are an estimated 800 pages of records that accompany each waste package being disposed of at the Waste Isolation Pilot Plant. To appropriately manage these records, DOE must make a determination on the extent of access and controls needed for records such as those relating to long term stewardship, health effects analysis, and lawsuits.

DOE will establish a task force (including representatives of DOE and contractors employees at HQ and in the Field) to develop options and work with National Archives and Records Administration to define proper records management and retention.

## **Closure Corporate Core Team**

Although still being finalized, the idea is that members of the Closure Corporate Core Team would be assigned to a closure site to fill skills gaps during last stages of closure. The Core Team is intended to fill critical functions or serve as experts in areas such as: fire protection, Facility Representatives, real estate sales and leasing, and contract termination.

This idea was conceived as a way to broker talent between closure sites to meet specific technical or business closure process needs, and was developed because we found that Federal personnel would begin accepting jobs at other sites or in other business sectors once closure of a DOE site was imminent.

Mechanisms that are being evaluated to help the Closure Corporate Core Team concept succeed include:

- C Establishing an EM-wide capabilities data base for critical positions and initiating mechanisms to foster temporary assignments
- C Offering incentives to employees eligible for retirement to delay their departure to work at closure sites
- C Removing salary offsets for retirees and offering other incentives to re-employ retirees at closure sites.

## **Federal Employee Incentives for Defense Site Closure Installations**

As noted earlier, we anticipate shortages of Federal workers at former defense sites where closure will occur, as these workers seek employment elsewhere rather than face getting laid off when site cleanup is finally completed. The eligible sites are those selected by the Secretary under the 1997 National Defense Authorization Act, and currently include only those Federal employees at Rocky Flats, the Ashtabula Environmental Management Project, in Ashtabula, OH, the Columbus Environmental Management Project in Columbus, OH, Fernald, and Mound.

Potential incentives include additional annual leave accumulation (up to 720 hours), voluntary separation incentive payment irrespective of other DOE authorities, continuing health insurance coverage for 18 months, with the Government share paid by DOE, and retention allowances of up to 30% of pay. To get these incentives, Federal employees would be required to sign agreements to stay for set period, then voluntarily leave.

## **Documentation and Agreements for EM Projects at Non-EM Sites**

This is an issue that primarily affects small sites where OSC is attempting to complete all EM programmatic requirements at a site that is managed by another DOE Program Secretarial Officer (PSO). The challenge is balancing budget requirements between EM and the other PSO to properly sequence the work.

OSC has developed guidance, in cooperation with EM's Office of Integration and Facility Disposition, to document agreements between EM and the site PSO to ensure the proper balance is achieved and maintained until EM cleanup activities at the site are completed. This guidance will be promulgated shortly in a Transition Implementation Guide distributed under DOE Order 430.1, Life Cycle Asset Management.

## **Assuring Financial and Managerial Control**

Last fall, OSC developed and distributed a Management Plan that addresses the myriad of general and Federal management requirements necessary for OSC to demonstrate financial and managerial control. The Management Plan describes the management approach, policies, and practices for accomplishing the mission of OSC; identifies the framework and basic guideposts for safely and cost effectively cleaning up sites and facilities; and establishes a living document intended to serve as a central hub for organizing and communicating current program/project management processes and products.

The Management Plan and other key program documents (Site Closure Vision Document, OSC Draft Strategic Plan, OSC Operating Principles) form the foundation of a rigorous yet flexible framework that recognizes each site where cleanup is being conducted must have the latitude to select the set of management systems and tools that best satisfy their site-specific mission needs.

Additionally, there are many potential management requirements that may flow down from the DOE or EM management levels. Therefore, OSC must maintain the Management Plan as a working document to allow accommodation of these requirements as they are identified and defined. The Plan will also provide a central reference for internal and external groups interested in understanding key OSC management processes.

## **Proving It by Being Well on the Way to Completing the Closure Account Sites**

Let's look at progress at some of the Closure Account Sites.

### **Rocky Flats**

In January 2000, the DOE and Kaiser-Hill signed a first-of-its-kind contract to complete the Rocky Flats Closure Contract by a target date of December 15, 2006.

During the past year the Protected Area at Rocky Flats continued to be reduced to allow more efficient access for decommissioning activities. Shipment of classified plutonium metal parts to the Savannah River Site in South Carolina began in March 2000, and will continue for several years. Scrub alloy (a byproduct from “scrubbing” americium from plutonium during processing) shipments to Savannah River were completed in April 2000.

The Record of Decision (ROD) on the Waste Management Programmatic Environmental Impact Statement provides new opportunities for DOE to reduce costs. The ROD allows DOE to pursue disposal of its low-level waste and mixed low-level waste at either a DOE disposal site or a commercial disposal site. Rocky Flats successfully negotiated an annual bulk low-level waste disposal rate with the Nevada Test Site.

These activities demonstrate that we are making progress in moving materials offsite and achieving cleanup efficiencies.

Additional information on progress at Rocky Flats will be presented in other papers at WM '01.

### **Fernald**

Cleanup is progressing at Fernald, mainly because DOE and Fluor Fernald exercise a working partnership with the members of the public to keep them informed and involved. The results of this partnership are clear - Fernald is moving ever closer to final site closure by disposing of waste on site and shipping waste off site. Specifically, during FY 2000, more than 1000 rail cars (more than 150,000 metric tons) of Fernald low-level waste was shipped to Envirocare of Utah for disposal. More than 3,000 m<sup>3</sup> of low-level waste was shipped to the Nevada Test Site for disposal. Nearly 2000 metric tons of uranium (including enriched, depleted, and normal uranium in the forms of oxides, metals, or salts) were shipped off the Fernald site, and nearly 120,000 m<sup>3</sup> of waste was placed into the onsite disposal facility. In addition, 40% of site land (representing approximately 160 hectares) has been certified as meeting EPA cleanup levels.

Additional information on progress at Fernald will be presented in other papers at WM '01.

### **Mound**

At the Mound Site, all excess nuclear materials were moved offsite by the end of FY 2000. In addition, we have identified a path forward for offsite shipment of transuranic waste, which is scheduled to begin by the end of FY 2001 and to be completed in FY 2002. Movement of the nuclear materials and the transuranic waste from the site shows clear progress towards site closure.

However, during FY 2000 at Mound, we were challenged by the discovery of stable metal tritides. The good news is that we now know how to deal with these materials, which we previously didn't even know existed. The bad news is that assessing them and figuring out how to deal with them expanded our scope and have significantly contributed to a delay in our baseline cleanup schedule beyond 2004.



Nonetheless, we continue to make progress towards site closure, with the third and fourth parcels of Mound Site land scheduled to be deeded to the Miamisburg Mound Community Improvement Corporation (MMCIC) in early 2001. These transfers will bring the total land transferred from the government to the MMCIC to 40% of the original Mound Site.

Additional information on progress at Mound will be presented in other papers at WM '01.

### **Weldon Spring**

The Weldon Spring Site Remedial Action Project (WSSRAP) in St. Charles, County, MO, is in the Non-Defense Closure Account. WSSRAP has a planned closure date of September 30, 2002. During the past year, the site made major progress in pursuit of closing the site by the target date. Specifically, WSSRAP:

- C Completed the placement of all planned waste into the 1.15 million m<sup>3</sup> onsite disposal facility. Only miscellaneous waste placement, the cap construction, and the placement of the rock cover remain for the final completion of the facility;
- C Completed demolition of the RCRA storage building, which marked the last of the legacy plant buildings slated for removal;
- C Completed the remediation of residual contamination in the quarry and initiated the restoration of the quarry;
- C Completed the remediation of the raffinate waste pits and the sedimentation and retention basins on the main chemical plant site;
- C Completed the demolition and site remediation of the Site Water Treatment Plant, the Decontamination Facility, and the Maintenance Shop;
- C Signed an Interim ROC for the Site Groundwater Operable Unit which approved the treatment of trichloroethylene (TCE) in the site groundwater.

In addition, like a number of the OSC sites, WSSRAP is preparing for post closure stewardship. These activities included initiating the design of the planned interpretive center, which will provide visitors with a historical explanation of the operation of the original plant and its final demolition, and the environmental restoration of the site.

### **Progress at Non-Closure Account Sites**

There is more to the OSC program than just the work at the Closure Account Sites. The following section demonstrates that OSC's focus on achieving closure at the Closure Account Sites has not kept us from making progress towards site cleanup completion at our other sites.

### **Oak Ridge**

Cleanup at the Paducah Gaseous Diffusion Plant in Paducah, KY, is progressing, with the removal of more than 7,000 m<sup>3</sup> of empty, compacted drums from a scrap pile known as "Drum Mountain" in mid-September, 2000. Drum Mountain was the most prominent of many piles of scrap metal located at the site because of its height, approximately 10 m at the peak, which had been present for more than 30 years. Removal of the scrap resulted in 2,400 metric tons shipped by rail to a commercial offsite low-level waste disposal facility.

The first shipment of low-level waste consisting of solidified sludge from the Melton Valley Storage Tanks was sent to the Nevada Test Site on April 14, 2000. Using the authority granted under the same ROD for the Waste Management Programmatic Environmental Impact Statement as Rocky Flats, the Oak Ridge Reservation in Oak Ridge, TN, is now routinely disposing of low-level waste at the Nevada Test Site, enabling the Site to move more quickly to addressing the legacy of previously stored wastes.

Also at Oak Ridge, all eight Gunitite Tanks were cleaned up ahead of schedule, at a savings of \$120M off the original cost estimate of \$200M. In addition, the original completion date was FY 2015, and we finished in FY 2000. Now that's accelerating a schedule!

### **Small Sites**

At the Brookhaven National Laboratory in Upton, NY, the Brookhaven Graphite Research Reactor above-ground ductwork is being removed, and is scheduled to be completed in March 2001. While this may not sound like a significant accomplishment, it is resulting in a distinct change to the Site skyline. And a change like this is just another way we are showing progress towards completing our EM responsibilities at Brookhaven and other sites on a daily basis.

At Argonne National Laboratory-East, in Argonne, IL, the Chicago Pile-5 (CP-5) Reactor decommissioning was completed in July 2000, ahead of schedule, resulting in the disposal of more than 900 metric tons of low-level waste and nearly 225 metric tons of mixed low-level waste.

At the Laboratory for Energy-Related Health Research (LEHR), located on the campus of the University of California at Davis, in Davis, CA, we completed removal of the radium and strontium underground piping and tanks, keeping the site on schedule for completion in 2004. Use of the soft-side containers (developed by OST) for waste packaging and disposal yielded a \$90K cost savings for FY 2000. This savings was used on other remedial activities at the site, helping to keep the site on its 2004 "stretch goal" completion schedule. The Oakland Operations Office and LEHR personnel are to be commended for constantly working to identify cost and schedule savings in order to achieve this site completion goal.

FY 2000 was exceptionally challenging to the Los Alamos Environmental Restoration (ER) Project at the Los Alamos National Laboratory, in Los Alamos, NM, due to the impact of the Cerro Grande wildfire in May. There were many questions and concerns regarding the possibility that contaminants could be washed down from potential release sites and along canyons to the Rio Grande. The ER Project immediately shifted its priorities to address these concerns. Ninety-one sites that were touched by the wildfire were stabilized. Baseline sampling to characterize post-fire, pre-flood conditions ( i.e., prior to summer-time heavy rains ) in fire-impacted watersheds was conducted. Forty-seven accelerated cleanup actions were taken, mostly at sites located in floodplains.

Additional progress at several of these sites is also discussed in other papers presented at WM '01.

## **ACHIEVING COST SAVINGS**

Regardless of where a site is in its cleanup process, waste management and disposal represents a significant cost. During FY 2000, both the West Valley Demonstration Project, in West Valley, NY, and the Paducah Site were able to reduce the costs of disposal of debris waste through use of a Low-Level Waste Disposal Contract with Envirocare of Utah. The contract with Envirocare is based on a low cost for soil shipments, and includes an incentive to ship debris with the soil in a 9:1 ratio (soil to debris). This incentive allowed the debris waste to be priced at the lower soil rate. The DOE Ohio Field Office worked with Envirocare to enable the entire DOE complex to share in the 9:1 cost savings, which enabled smaller sites, without the capacity to mix their own soil and debris waste, to coordinate shipments of debris with large shipments of soil from another site, and still receive the cost savings.

The West Valley Site took advantage of this by coordinating a rail shipment of 8 intermodals of debris with a Fernald shipment of soil to Envirocare. West Valley shipped 136 m<sup>3</sup> of debris waste that arrived at Envirocare two days before the arrival of the Fernald soil. The effort to coordinate these shipments for arrival within the contract limitations (within 7 days of each other) resulted in a savings of approximately \$44K. In addition, earlier in the fiscal year, West Valley had coordinated a shipment of 37 m<sup>3</sup> of debris for a savings of \$12K. The total cost savings realized during FY 2000 was over \$50K.

The Paducah Gaseous Diffusion Plant also coordinated debris shipments to Envirocare of Utah with Fernald soil shipments to take advantage of the lower rates associated with soil disposal. Although the cost savings associated with the disposal of the Drum Mountain scrap yard can not be quantified at this time, preliminary reports indicate that approximately 340 m<sup>3</sup> of debris were disposed at the lower rate. This would equate to a cost savings of approximately \$115K. Paducah anticipates significant cost savings in the future since the Drum Mountain scrap yard represents approximately 10% of the total scrap inventory at Paducah. Beginning in FY 2001, the remainder of the scrap yards will be sorted, size reduced, and packaged for disposal at Envirocare. For waste disposal at Envirocare, continued coordination of Paducah debris shipments with the Fernald soil shipments will result in significant lifecycle cost savings to the Paducah Balance of Scrap Metal Removal Project. In addition, Paducah

has made coordination of debris shipments with Fernald soil shipments a routine management practice for disposal at Envirocare, thereby ensuring that all possible cost savings will be achieved.

The Ashtabula Environmental Management Project in Ashtabula, OH, was also able to achieve cost reductions through coordinating shipments of debris with soil shipments from Fernald. During FY 2000, the Site was able to save approximately \$40K through this coordination.

Within a program having a budget of over \$2 billion, a savings like that of \$40K at Ashtabula, \$50K at West Valley, or even \$115K at Paducah may sound trivial. But OSC recognizes that large savings are most often the result of a series of smaller savings, and we continue to look for cost savings of any size. We also appreciate Envirocare of Utah's willingness to pass along to us the cost efficiencies they were able to achieve by co-disposing the wastes debris from West Valley, Paducah, and Ashtabula with the Fernald soils.

## **ACHIEVING THE 90% GOAL**

With the publication of "Accelerating Cleanup: Paths to Closure" in June 1998, DOE articulated a goal, and developed costs and schedules, based on the activities then known to make up EM's responsibilities at each of its sites. However, the scope of OSC's responsibilities at each site can change. For example, as with any environmental cleanup activity, as OSC completes characterization, it may find that the original estimates of how much contamination needs to be addressed, how it should be managed, and the cost and schedule for the cleanup activity are no longer accurate. For example, at the King Avenue Site, OSC found that the original plan expected to address more contamination than ultimately needed remediating, resulting in a cost and schedule savings from the baseline. Conversely, enhanced characterization can result in the identification of additional contamination that must be addressed, therefore adding cost and schedule to the baseline.

Addition of new scope to OSC's baselines is not limited to finding additional contamination during characterization. OSC's responsibilities include the management of surplus facilities, and OSC's scope may grow through the acceptance of newly surplus facilities, since the total number of surplus facilities at a site is not a constant. This is because site missions change, which results in facilities which previously had a mission becoming surplus. When the facilities are determined to be surplus, it is appropriate for them to be transferred to OSC, which then assumes responsibility for managing them. However, it is often difficult to project specific facilities that will become surplus on a specific schedule. Therefore, in 1996, EM temporarily halted the transfer of facilities into EM to enable the current owners for all facilities and EM to gain more knowledge about these potentially surplus facilities, and to enable EM to better plan incorporation of these new facilities into site baselines. Transfers of new facilities into OSC for decommissioning are expected to resume in 2002.

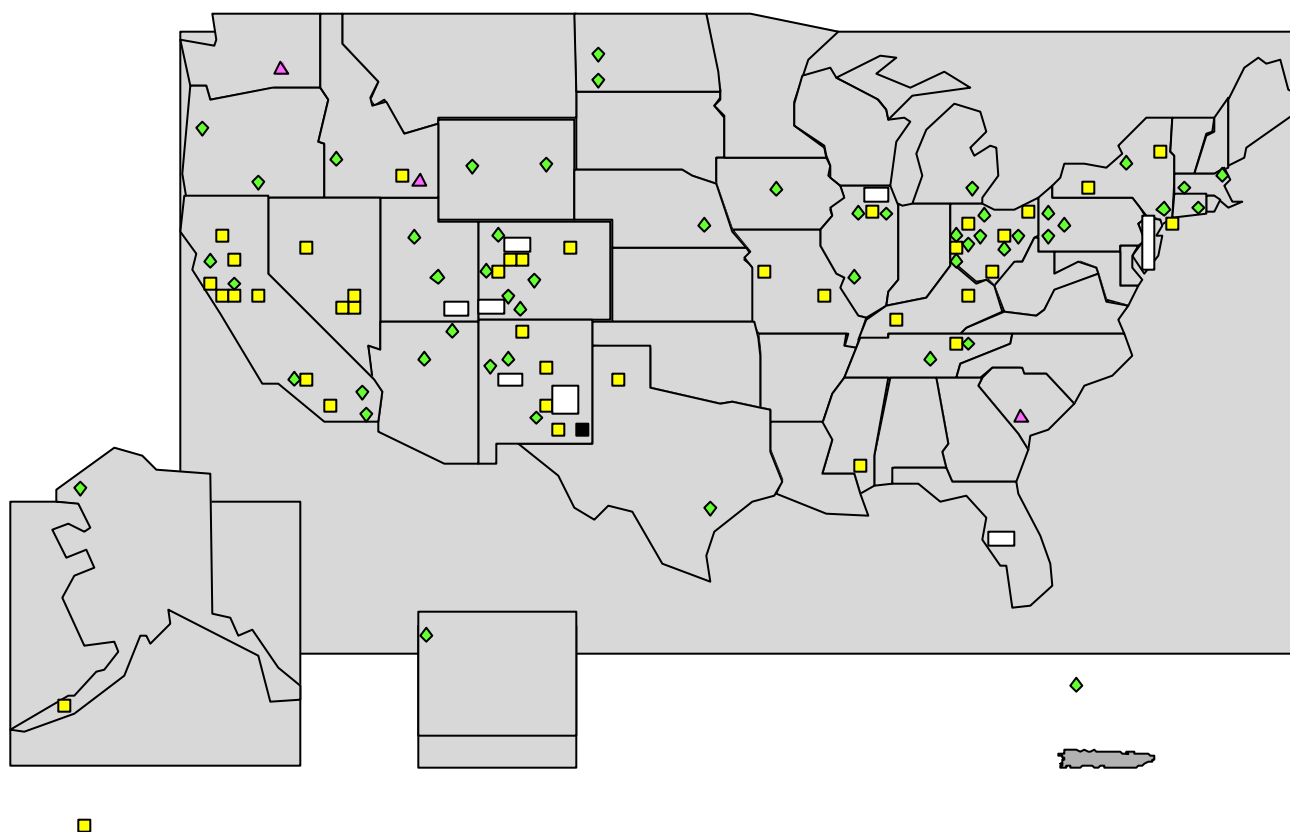
Finally, the scope of a cleanup may change because of a new regulation, requirement, or agreement. In this case, DOE must take a look at the existing baseline in light of the new requirement, and determine if

a change is needed. If a change is needed, the new scope must be incorporated into the baseline, which usually results in an increase in cost or an extension of the time required to complete the site cleanup.

Sites where scope has been added to OSC's baseline within the past several years include Argonne National Laboratory-East, Brookhaven National Laboratory, Pantex, Lawrence Livermore National Laboratory, Lawrence Berkeley National Laboratory, Stanford Linear Accelerator Center, and several sites within the Oak Ridge complex.

These additions to cleanup scope have the potential to extend the baseline schedule and increase costs for cleanup. So it is no surprise that it is extremely unlikely that EM will achieve its goal of closing 90% of its sites by 2006. Instead, EM is focusing on completing as much cleanup as possible by 2006, and reducing the EM infrastructure costs at each site as expeditiously as possible.

A map illustrating the full scope of the EM program, showing the completed sites and those with ongoing or anticipated future activities, along with a complete listing of these sites, is provided in Figure 1 and Table I.



- ◆ Office of Site Closure Sites - Completed
- Office of Site Closure Sites - Not Completed
- ▲ Office of Project Completion Sites
- Office of Integration and Disposition Site

EM Sites per IPABS, 5/00  
Prepared by Visuals Resource Center for EM-30 Map 13

U. S. DEPARTMENT OF ENERGY  
ENVIRONMENTAL MANAGEMENT SITES  
Table I

Environmental Management Sites

State	Site Name	State	Site Name
AK	Amchitka Island (Nevada Offsite)	NJ	Middlesex Municipal Landfill (FUSRAP site)
AK	Project Chariot (Nevada Offsite)	NJ	Princeton Plasma Physics Laboratory
AZ	Monument Valley (UMTRA site)	NM	Waste Isolation Pilot Plant WIPP)
AZ	Tuba City (UMTRA site)	NM	Gnome-Coach (Nevada Offsite)
CA	Geothermal Test Facility	NM	Chupadera Mesa (FUSRAP site)
CA	General Atomics Site	NM	Sandia National Laboratories - NM
CA	Salton Sea Test Base	NM	Lovelace Respiratory Research Institute (LRRRI)
CA	Energy Technology Engineering Center (ETEC)	NM	South Valley Superfund Site
CA	Oxnard Facility	NM	Pagano Salvage Yard
CA	General Electric Vallecitos Nuclear Center	NM	Holloman AFB
CA	Lawrence Livermore National Laboratory Site 300	NM	Los Alamos National Laboratory
CA	Lawrence Livermore National Laboratory Main Site	NM	Bayo Canyon (FUSRAP site)
CA	Stanford Linear Accelerator Center (SLAC)	NM	Acid/Pueblo Canyons (FUSRAP site)
CA	Sandia National Laboratories - California	NM	Ambrosia Lake (UMTRA site)
CA	Lawrence Berkeley National Laboratory	NM	Shiprock (UMTRA site)
CA	University of California (FUSRAP site)	NM	Gasbuggy (Nevada Offsite)
CA	Laboratory for Energy Related Health Research (LEHR)	NV	Tonopah Test Range Area
CO	Maybell (UMTRA site)	NV	Nevada Test Site
CO	Old Rifle (UMTRA site)	NV	Central Nevada Test Site
CO	New Rifle (UMTRA site)	NV	Shoal Site (Nevada Offsite)
CO	Rocky Flats Environmental Technology Site	NY	West Valley Demonstration Project
CO	Rio Blanco (Nevada Offsite)	NY	Niagara Falls Storage Site Vicinity Properties (FUSRAP site)
CO	Rulison (Nevada Offsite)	NY	Separations Process Research Unit (SPRU)
CO	Grand Junction Projects Office Site	NY	Baker and Williams Warehouses (FUSRAP site)
CO	Grand Junction Mill Tailings Site (UMTRA site)	NY	Brookhaven National Laboratory
CO	Gunnison (UMTRA site)	OH	Ashtabula Environmental Management Project
CO	Naturita (UMTRA site)	OH	Columbus Environmental Mgmt. Project - King Avenue
CO	Durango (UMTRA site)	OH	Columbus Environmental Mgmt. Project - West Jefferson
CO	Slick Rock Old North Continent (UMTRA site)	OH	B&T Metals (FUSRAP site)
CO	Slick Rock Union Carbide (UMTRA site)	OH	Portsmouth Gaseous Diffusion Plant
CT	Seymour Specialty Wire (FUSRAP site)	OH	Associate Aircraft (FUSRAP site)
FL	Peak Oil PRP Participation	OH	Fernald Environmental Management Project
FL	Pinellas Plant	OH	Herring-Hall Marvin Safe Company (FUSRAP site)
HI	Kauai Test Facility	OH	Piqua, Ohio Site
IA	Ames Laboratory	OH	Alba Craft (FUSRAP site)
ID	Lowman (UMTRA site)	OH	Miamisburg Environmental Management Project
ID	Argonne National Laboratory - West	OH	Baker Brothers (FUSRAP site)
ID	Idaho National Engineering & Environmental Laboratory	OR	Lakeview (UMTRA site)
IL	National Guard Armory (FUSRAP site)	OR	Albany Research Center (FUSRAP site)
IL	University of Chicago (FUSRAP site)	PA	C.H. Schnoor (FUSRAP site)
IL	Site A	PA	Aliquippa Forge (FUSRAP site)

IL	Argonne National Laboratory -East	PA	Canonsburg (UMTRA site)
IL	Fermi National Accelerator Laboratory	PR	Center for Energy and Environmental Research (CEER)
IL	Granite City Steel (FUSRAP site)	SC	Savannah River Site
KY	Paducah Gaseous Diffusion Plant	TN	Elza Gate (FUSRAP site)
KY	Maxey Flats Disposal Site	TN	Oak Ridge Reservation (Y-12, ORNL, ETRP, ORR)
MA	Chapman Valve (FUSRAP site)	TN	Oak Ridge Associated Universities (ORAU)
MA	Ventron (FUSRAP site)	TX	Falls City (UMTRA site)
MI	General Motors (FUSRAP site)	TX	Pantex Plant
MO	Kansas City Plant	UT	Monticello Remedial Action Project
MO	Weldon Spring Site	UT	Mexican Hat (UMTRA site)
MS	Salmon Site (Nevada Offsite)	UT	Green River (UMTRA site)
ND	Belfield (UMTRA site) (UMTRA site designation was revoked in FY98)	UT	Salt Lake City (UMTRA site)
ND	Bowman (UMTRA site) (UMTRA site designation was revoked in FY98)	WA	Hanford Site
NE	Hallam Nuclear Power Facility	WY	Riverton (UMTRA site)
NJ	Kellex/Pierpont (FUSRAP site)	WY	Spook (UMTRA site)
NJ	New Brunswick Site (FUSRAP site)		

## ACHIEVING PROGRESS THROUGH INNOVATIVE CONTRACTING Prepared by Visuals Resource Center for EM-30

In January 2000, DOE signed an innovative contract for the closure of the Rocky Flats. Under this contract, Kaiser-Hill (the site Integrating Contractor) agreed to a target closure date for the site, and also agreed to fee incentives for accelerating site closure, and fee penalties for delayed closure. Specifically, Kaiser-Hill can increase its fee by \$120M for good performance, or lose up to \$190M for poor performance.

More recently, in November 2000, DOE awarded Fluor Fernald, Inc., the contract for final closure of Fernald. This new closure contract is a cost-plus-incentive-fee arrangement which provides significant financial incentives to Fluor Fernald to complete work at the site ahead of schedule and below the baseline cost.

These innovative contracts provide the opportunity for contractors to demonstrate their capability to achieve site closure safely and on schedule and within cost, and to earn substantial fee by doing so. This “win-win” situation enables the contractors to make more money, enables OSC to close sites, helps ensure safe cleanup activities, provides for protection of the worker, public, and the environment, and gives the American taxpayers the best cleanup value for their money.

## CONCLUSION

OSC has made significant progress since our inception in November 1999. Two sites were completed in FY 2000, and an additional three will complete cleanup in 2001. As of the end of September 2000, a total of 71 OSC sites have completed cleanup.

But the scope of OSC’s responsibilities continues to grow as additional contamination has been detected through characterization, and as facilities become surplus. Therefore, the 1998 goal of completing cleanup at 90% of OSC’s inventory of sites by 2006 is no longer realistic. However, OSC remains committed to achieve closure at several major sites: Mound, Rocky Flats, and Weldon Spring, by the end of 2006, and also expects to complete cleanup at several additional sites (such as Amchitka

Island, the Ashtabula Environmental Management Project, Argonne National Laboratory-East, Argonne National Laboratory-West, Lawrence Berkeley National Laboratory, the Laboratory for Energy-Related Health Research, the Portsmouth Gaseous Diffusion Plant, the Salmon Site, and the Stanford Linear Accelerator Center) by 2006.